

Appl. No. 09/839,365
Amendment dated: October 9, 2003
Reply to OA of: July 11, 2003

This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

1(currently amended). A method for forming a contact window, said method comprise:

forming a plurality of semiconductor structures on a wafer;

forming a coating layer over the surface of said wafer, where the thickness of said coating layer is not less than the heights of said semiconductor structures;

forming an over coating layer over said coating layer, wherein the etching rate of said over coating layer is higher than the etching rate of said coating layer; and

forming said contact window in both said over coating layer and said coating layer by a single isotropic etching process, wherein upper part of said contact window is outwardly widened.

Claim 2(canceled).

3(original). The method of claim 1, wherein the lateral etching rate of said over coating layer is higher than the lateral etching rate of said coating layer.

4(original). The method of claim 1, wherein upper part of said contact window is outwardly oblique.

5(original). The method of claim 1, wherein upper part of said contact window is outwardly crooked.

6(original). The method of claim 1, wherein upper part of said contact window is outwardly smooth.

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7(original). The method of claim 1, wherein an opening of said contact window locates on top surface of said over coating layer and said contact window lands on said semiconductor structures.

8(original). The method of claim 1, wherein an opening of said contact window locates on top surface of said over coating layer and said contact window lands on said wafer.

9(original). The method according to claim 1, wherein said semiconductor structures comprises gate, electrode of capacitor, isolation layer and multilevel interconnects.

10(original). The method according to claim 1, wherein said coating layer comprises dielectric layer.

11(original). The method according to claim 1, wherein material of said over coating layer is chosen from the group consisting of following: oxide and dielectric.

Claim 12(canceled).

13(currently amended). A method for forming a metal plug, said method comprising:

forming a dielectric layer over a wafer;

planarizing the surface of said dielectric layer by a chemical mechanical polishing;

forming an oxide layer over said dielectric layer, where said oxide layer filling a plurality of polishing scars and said oxide layer having an etching rate which is higher than an etching rate of said dielectric layer;

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forming a contact window in both said oxide layer and said dielectric layer by a single isotropic etching process, wherein upper part of said contact window is outwardly widen; and
filling a metal in said contact window.

14(original). The method of claim 13, wherein upper part of said contact window is outwardly oblique.

15(original). The method of claim 13, wherein upper part of said contact window is outwardly crooked.

16(original). The method of claim 13, wherein upper part of said contact window is outwardly smooth.

17(original). The method of claim 13, wherein an opening of said contact window locates on top surface of said oxide layer and said contact window lands on said wafer.

18(original). The method according to claim 13, wherein said dielectric layer is an annealing oxide layer, said annealing is formed in about 800 °C and then etching rate of said annealing oxide layer is higher than said oxide layer.

Claims 19-22(canceled).